The African origins of Euro-American development: Pins on an empirical roadmap

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> Africa is no vast island, separated by an immesne ocean from other portions of the globe, and cut off through the ages from the men who have made and influenced the destinies of mankind. She has been closely connected, both as source and nourisher, with some of the potent influences which have affected for good the history of the world. - Edward Wilmott Blyden, 1880.

Abstract: Despite their obvious ideological bends, economic studies of the interactions between Africa and "developed" Europe and America (Euro-America) have been decidedly lopsided. Existing studies conceive the effects of the interactions to be unidirectional, with Africa always on the receiving end in both good and bad ways. The conception is incorrect; it lacks the appreciation that the effects are interactive, mutual, dynamic, and simultaneous. Thus, I argue that contrary to the extant literature, the development of Euro-America has origins in Africa through the mechanism of mercantile, slave, and free trade. For example, the growth of colonial Britain depended on foreign trade with the Americas – exports of manufactured goods and imports of raw materials. In turn, American raw materials were produced by African slave labor. When slavery ended African raw materials began to flow to Euro-America in greater amounts than before, replacing slave labor. The result was a smooth transition from a slave-labor-based economy to a modern economy in Euro-America, and a stunted economy in Africa. The objective of this paper is to sketch how one might go about illustrating such effects in a simple quantitative way. In other words, it puts some pins to suggest a roadmap for empirical studies. To do so, first I review very briefly the history of African and Euro-American interactions. Second, I attempt to establish the channels of interactions. Third, I construct a simple model for measuring Africa's effects on Euro-American development as a system of three seemingly unrelated equations, which can be estimated individually and/or simultaneously. Fourth, I indicate the challenges and mehods for generating the data required to implement the model empirically. While this version of the paper is unaccompanied by its empirical counterpart, it is nonetheless clear that at least some of the origins of Euro-American development are African.

Key Phrases: African origins of Euro-American development, growth and development, growth and change

JEL Code: O55, O33, O47, P52, P16, P51, N13

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*This paper is a product of many years of lonely thinking. But, for a dose of humility, like Keynes put it in his preface to *The General Theory*, "It is astonishing what foolish things one can temporarily believe if one thinks too long alone, particularly in economics (...), where it is often impossible to bring one's ideas to a conclusive test either formal or experimental" (pp. vii-viii).

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1. Problem characterization

The problem this paper characterizes is that nearly all extant theories of comparative economic development put "developed" countries at the center of the observed growth and decline of "developing" countries, especially African countries. In that general sense the Wallersteinian (1974; 1980; 1989) center-periphery argument is a plausible hypothesis. For example, according to Walter Rodney (2011[1972]) "Europe underdeveloped Africa." Rodney's analysis is consistent with the dependency theory, which argues that developed countries benefitted hugely from the underdevelopment of developing countries (Frank, 1969; Evans, 1979; Emmanuel, 1972; Amin, 1975). Other writers in this genre illustrate dependency with the notion of "unequal exchange" (Amin, 1977; Webber and Foot, 1984; Joseph and Tomlison, 1991). Less radical, so-called North American (e.g., Sweezy, 1970), as opposed to Latin American, versions of "unequal exchange" follow more closely the economics, rather than the politics, of Prebisch's (1950) and Singer's (1950) arguments that the terms of international trade are biased against developing countries which export raw materials and import manufactures.

Recently Acemoglu, Johnson, and Robinson (AJR, 2001, cf. Amavilah, 2006) have argued that the impact of Europe on the comparative development of developing countries occurred via climate-induced mortality rates. Favorable climates meant low mortality rates, which led to growth enabling institutions. The resulting institutional inheritance spurred development. On the other hand, in inhospitable climates, high mortality rates led to "extractive institutions," and hence to poor economic development. The latter provides an explanation for the "reversal of fortune" arguments (AJR, 2002; Austin, 2008; Sanghamitra, 2011).

Easterly and Levine (EL, 2016) have added to AJR that the comparative development of developing countries depended not just on institutional change, but also on the share of the European population that settled in colonies. The high share of population was closely associated with economies of both scale and scope, making for fast and easy transfer and adoption of European technologies and human capital. These effects persisted in various forms well into the modern economic history of performance (Fogel and Engerman, 1974; Sokoloff and Engerman, 2000; Bertocchi and Guerzoni, 2010; Nunn, 2008; 2009; 2012; Inikori, 2000a; 2000b; 2002; Inikori and Engerman, 1992; Austin, 2010; 2008; 2005; Bertocchi and Canova, 2002; Cardoso and Faletto, 1979). However, the argument continues, the negative effects are more than offset by the positive effects of European technology, institutions, culture, etc. This conclusion is contrary to Amavilah's (2015) observation that the de-institutionalization of Africa was a major obstacle to technology, technological change, and long-run economic growth.

While previous explanations are reasonable, with respect to African countries, they are nearly all one-sided. They always assume interactions in which Africa either benefitted or suffered from the effects of interactions with developed countries. *There is no accounting whatsoever of the fact that the development of developed countries might have important origins in Africa.* This understanding of economic history isolates the economics profession from its social relatives (cf. Amavilah, 2010).

It is no exaggeration that many "old money" capitalists have had financial connections to African land and labor, both classically defined (Minter, 1986; Cooper, 1983). Again, this is not a brand-new insight; a useful guide for establishing the link between Africa and Euro-America is AJR (2005), where the "rise of Europe" was due to the "Atlantic trade" which brought about institutional change in both Euro-America and Africa, but economic growth only in Euro-America.

I argue that a significant part of that trade was the slave trade – a source of cheap labor supply – and later raw materials. Therefore, the principal objective of this paper is to sketch the channels through which Africa has contributed to the development of Euro-America. The sketch sets the stage for the empirics of the model, which I pursue in a separate paper. Section 2 below describes African and Euro-American interactions using the Atlantic slave triangular trade in order to structure the exposition. Post slavery, I replace slaves in the triangle with raw materials. Section 3 outlines the channels of African Euro-American interactions. Section 4 builds a rudimentary model for estimating the African origins of Euro-America development, while Section 5 describes the data requirements. For now I make only a tentative and modest concluding remark in Section 6.

2. Very short history of Africa-Euro-American interactions

As the quote at the beginning of this paper indicates, Africa and Africans have interacted with the outside world for centuries – most certainly with the Old World (Europe and Asia), but as Van Sertima (1976) asserts also with the New World. However, modern economic historians have either been lazy or negligent, because their story only illustrated of the interactions since 1400. The illustration takes the form of the socalled "triangular trade of the Atlantic economy" (Findlay, 1993), and tacitly claims that European "entrepreneurs" sold manufactures in Africa, bought African slaves from Africans, and sold slaves in the Americas, where slaves produced raw materials for European markets. Of course, this is an incorrect reading of history; slavery was never ordinary business!

Pin 1: The manufactures share (X_i) of European gross domestic product (Y_i) depended on American raw materials (Z_j), which in turn depended on African raw materials (S_k) equal to slave labor during slavery, i.e.,

$$X_i = f(Z_j(S_k)),\ i = Europe,\ j = America,\ k = Africa. \qquad (1)$$

If we assume that $\partial Y_j/\partial Z_j > 0$, $\partial Z_j/\partial S_k > 0$, and by the Verdoorn-Kaldor law (Kaldor, 1961; 1966; Choi, 1983, pp. 155-167), $\partial Y_i/\partial X_i > 0$, then by implication $\partial X_i/\partial S_k \neq 0$ even when $\partial Y_k/\partial S_k \leq 0$.

Findlay (1999) argues that the dynamics of (1) are that slave labor had high returns in European manufacturing whereas capital had high returns in the raw materials sectors in Africa and the Americas. The implication of the dynamics justifies exports of manufactures from Europe to Africa and the Americas in exchange for the imports of raw materials (slaves). The justification is not

entirely correct for the obvious reason that slaves were not raw materials *per se*. Moreover, the marginal product of slave labor did not accrue to Africa at least not in the free market sense. Moreover, there were no significant manufactures to Africa from anywhere during slavery – rum, weapons, and religions were among the few African imports. However, as drawn up in Barbier (2005, p. 79), Findlay's triangle applies only to the 1400-1870 period; it does not account for the effects of the "scramble for Africa" and beyond, for example.

Pin 2: Once formal slavery ended, Y_i continued to depend on X_i driven by Z_j, now reliant on raw materials directly from Africa (S_k), no longer equal to slave labor. In other words,

$$Y_i = f(X_i(Z_j),\ Y_k(S_k)). \tag{2}$$

For $\partial Y_k/\partial S_k < 0$, $\partial Z_j/\partial S_k \approx \partial Y_i/\partial Z_j \neq 0$, $\partial Y_i/\partial Y_j > 0$, $\partial X_i/\partial Z_j > 0$, $\partial Y_j/\partial S_k > 0$, implying that the African economy had an effect on the Euro-American economy.

In (2) the African economic activity (Y_k) depended on domestic natural resources, *ceteris paribus*. What then has prevented African countries from progressing and/or progressing fast? Barbier (2005) offers a number of explanations. First, Y_k has grown slower than population, leading to a classic Malthusian prediction of too many mouths to feed and too little food available. The second reason is dependency of African countries on the export of raw materials for which the terms of trade have deteriorated over time, in addition to associated resource curses and Dutch diseases (cf. Davis, 1995; Davis and Tilton, 2005; Carmignani and Chawdhury, 2010; 2011; Fosu, 2013; Clootens and Kirat, 2017). He contrasts the situation to the USA where initially the country grew because of its vast non-renewable resources: energy and minerals. Then during the 1879-1940 U.S. growth relied on the resource intensity of manufactured exports being greater than the resource intensity of manufactured imports. Also, unlike most African countries, at the time U.S. manufacturers had access to one of the largest domestic markets in the world. Thirdly, the short economic distance to domestic markets lowered transactions costs (cf. Romer, 1996; Wright, 1990). Finally, abundant resources and domestic demand for those resources induced investment in resource extracting and transport technologies.

Pin 3: The gains from primary resources (R_1) led to extractive technological gains (A_1), which made possible secondary or higher resource (R_2) and technological (A_2) gains. Compactly,

$$\begin{aligned} R_2 &= (1 + \rho)R_1,\ \rho = \Delta R = R_2 - R_1, \\ A_2 &= (1 + \alpha)A_1,\ \alpha = \Delta A = A_2 - A_1. \end{aligned} \tag{3}$$

Over n-periods the present values of resources and technologies are $R_1 = R_2(1 + \rho)^{-n}$ and

$A_1 = A_2(1 + \alpha)^{-n}$, respectively. More importantly, (3) implies that

$$Y_j = f(Z_j, A_j; \rho, \alpha) = f(R_j, A_j \rho, \alpha). \quad (4)$$

From (4) one can postulate that $\partial Y_j/\partial Z_j > 0$ and $\partial Y_j/\partial A_j > 0$, with $\partial Y_j/\partial Z_j > \partial Y_j/\partial A_j$ in the early years of U.S. development and $\partial Y_j/\partial A_j > \partial Y_j/\partial Z_j$ in the later stages of development. This perspective is consistent with Lewis's (1965[1955]), Romer's (1990; 1993), and Spiegel and Benhabib's (1994) arguments that development depends on "objects" in the beginning, and later as diminishing returns set in, on "ideas" – using Romer's words (1993; cf. Amavilah, 2014; Amavilah, 2005).

Returning to our question: Why is the U.S. example not applicable to African countries? First, globalization has lowered the cost of global links, thereby increasing international competition. Second, raw materials are no longer a sufficient factor of production and economic growth. Third, the small size of domestic markets and high transaction costs reduce the competitiveness of African countries. The "unequal exchange" basis of terms of trade explain some of these ideas (cf. Krugman, 1981).

3. Channels of interactions

Even if the evidence were correct that African growth has not been impressive, it is *still incomprehensible to argue that Africa has had no effect on the development of Euro-America.* In fact, it is absurd!

Pin 4: Africa contributed significantly to the economic development of Euro-America, [perhaps more than Euro-America contributed to African development].

How would one prove such a claim? By asking a counterfactual question: Why was there interest in Africa if there were no benefits? At the microeconomic level we know that an oligopoly of nearly 192 slave ships existed around U.S. war for independence, and by 1790 it involved British, French, Portuguese, Dutch, and Danish traders. The industry ultimately shipped over 15 million African slaves in the Americas. Many individuals, cities, and royal families – some had even slave ships named after them – were involved in the trade. It is a reasonable conclusion that the benefits outweighed the total economic costs of building or refurbishing these ships and the cost of the voyages. In other words, the opportunity cost of being a slave trader as opposed to being in another non-slave trade business (normal profit) was justified. Hence, Pakenham (1991) is correct that "Africa was a lottery and a winning ticket might earn glittering prizes" (p. xxiv). For this reason the continent attracted the attention of many: journalists, sailors, soldiers, tycoons, intellectuals, and nations. David Livingstone pointed to the 3Cs (commerce, Christianity, and civilization) – "a triple alliance of Mammon, God and social progress" in which "trade, not the gun, would liberate Africa" (p. xiv; cf. MacCulloch, 2006). More importantly for Britain in all this was the expansion and protection of the empire, especially the "steamer routes to the East via Suez and the Cape" (p. xxv).

This became the basis for Cecil Rhodes's 'from Cape to Cairo' design. Although an entirely different matter than the object of this paper, it is still worth mentioning that the Rhodes Scholarship is African in origin, and its global contribution to human capital has enormous, and by far beneficial to Euro-America more than Africa. Similarly, Belgium was urged into Africa by King Leopold II for whom Africa was "a crusade worthy of this century of progress," and "a good chance of getting a slice of the magnificent African cake"(pp. 21-22). Although gold was known to the Romans and Phoenicians, mainly because King Mansa Musa of Mali traded with them, Portugal drove Euro-American fascination with gold (El Mina example) during the time of the "Scramble for Africa," and the establishment of the Angolan and Mozambiquan colonies had a lot to do with that drive. France had a similar design, stretching from Senegal in the West to Djibuti in the East (Davidson, 1959; 1964; Murphy, 1972). Despite Bismark's outward humanitarian cloak, economic interests in Togo, Cameroon, Namibia (South West Africa), mainland Tanzania (Tanganyika), Burundi, and Rwanda were to enhance Germany's political and economic prestige and growth. An indication how important all this was is that the emergence of gold as a medium of foreign exchange essentially commercialized slavery. For one, gold was mined by slaves, transported to markets by slaves, and in a sense used to buy slaves. The profitability of the Euro- American manufacturing economy depended on raw materials produced by slaves (Moss, 2007; Thornton, 1998; Kaufman,1982; Curtin, 1969), i.e., Africa affected Euro-America positively..

Pin 5: If EL (2016) are correct that the source of growth and development in poor countries today is attributable to the share of European population in those areas during the colonial years, it is equally reasonable to argue that the Euro-American development today depended on slave population in colonies in the past. Technology and human capital were important, but as Thornton (1998) has suggested only as accelerators, rather than causes, of development.

It is incomprehensible that to-date there is no easily accessible economic study of the effects of Africa on Euro-American economic development even though the evidence is incontrovertible! Sokoloff and Engerman (2000) and Engerman (2002) came close , but they focused instead on the relative effects of slavery on the economies of the New World, which they found unimpressive. They neglected the secondary or higher order effects of slavery via slave-influenced trade on Europe itself. These results only support Fogel and Engerman's (1989[1974) classic finding that slavery was an unprofitable, and hence unsustainable institution. The stance pits economists' conclusions against those of other experts like Inikori (2000a,; 2000b; 2002), Inikori and Engerman (1992), and Kolchin (1993) – a phenomenon Jerven (2011) has correctly called "a clash of disciplines." All this leaves the unavoidable conclusion that the Atlantic slave trade, and the gains from that trade benefitted Euro-America more than Africa. In the USA alone slaves were the driving force behind the emergence of industries like cotton, which in turn underpinned American capitalism (Baptist, 2014; Wright, 1978; Kolchin, 1993). Colonialism, neocolonialism, and economic imperialism all benefitted Euro-America. Historically speaking, we know from Adam Smith (1937) and others that Greek and Phoenician colonies were to relieve population pressures in mother countries. Except for the West Asian and North African regions which were urbanized already, Roman colonies sought to civilize northern European rural areas. American and African colonies were economic colonies, too – no matter the euphemisms. The primary interests here were in the "free" trade of minerals, gum, timber,

fish, sugar and rum, and "restricted" trade in cattle [to protect cattle farmers in the Mother country] – Smith's critique of monopoly mercantilism was on these aspects of trade.

Wakefield (2001[1849]) characterized colonization -- "a definitive scheme of what may be called conservative classical colonization" – as economic "systematic colonization" (Archer, 2003, Kittrell, 1973, 1966, 1965). As mentioned above we know from Adam Smith's (1937) *Wealth of Nations* that ancient "Greece undertook colonization to relieve the mother-city states from population and food pressure. 'The colonies were treated like the emancipated child ... [who is] at all times entitled to great favor and assistance, ... yet ... [over] whom [the mother] pretended to claim no direct authority or jurisdiction' ([] added; p. 523, cf. Kittrell, 1973). Within that scheme, Roman colonies satisfied demand for land and were representatives of the mothercity. Modern cities like London (Londinium) and Cologne (Colonia Claudia) were Roman colonies (Wikipedia). From this history it is clear that classical colonization exported capital and/or labor to the colonies and repatriated profit to mother-cities" (Amavilah, 2011, pp.4-6). The economic reasons were no different for African and American colonies.

Marx (1906) criticized Wakefield's theory of colonization as simply a ploy to postpone the inevitable demise of capitalism, which he thought was likely transitory, because "the great beauty of capitalist production [is] that it not only constantly reproduces the wage-worker as wage-worker, but reproduces always, in proportion to the accumulation of capital, a relative surplus population of wage-workers" (p. 842). Such a situation was unlikely in the American colonies with access to land for "the wage-worker of today is tomorrow an independent peasant, or artisan, working for himself. ... This constant transformation ... reacts in its turn very perversely on the conditions of the labor-market" (p. 843) so that as the wage-worker supply tightens, exploitation increases. Hence, "the capitalist mode of production and accumulation, and therefore capitalist private property, have for their fundamental condition the annihilation of self-earned private property; in other words, the exploitation of the laborer" (p. 848).

Reading Marx this way, Hobson's (1902) and Lenin's (1965) characterizations of colonization are noteworthy (cf. Boulding and Mukerjee, 1972; Hicks, 1969; Schumpeter, 1919). For Hobson the benefit of colonization derives from exports. Exports create domestic employment; employment generates income; income makes consumption possible; and consumption is a key component of the Keynesian GDP. According to Lenin (1965) colonization is imperialism and "imperialism is the highest stage of [monopoly] capitalism."

In his extension of the Marx-Hobson-Lenin thesis of colonialism, Sweezy (1970[1942]) argues that the demonstration effect of "the growth of monopoly within the older capitalist countries strengthens a resistance to the industrialization of new regions ... [as] the peoples of the backward lands are becoming increasingly hostile to foreign domination and are more and more resisting incorporation into the older capitalist economies" (p. 220). How successful the resistance have been beyond political independence is debatable (Sigmund, 1973). Bagchi (1982) has suggested that some countries have failed because of systematic exploitation of labor in non-white colonies vis-a-vis countries of white settlement like the USA, Canada, New Zealand, and Australia (Chapter 2). Capital

accumulation slowed in African colonies, because surplus declined with colonization, even as investment in fixed structures (socalled white elephants) like palaces, temples, roads, and irrigation works, and processes like urbanization – all increased (cf. Lewis, 1965).

Pin 6: AJR (2005) are correct that the Atlantic trade led to the rise of Europe. In Britain the port cities of Bristol, Hartlepool, Liverpool, London, and Southampton were central to that trade. These cities industrialized in a very large part because of African slavery: They sold slaves, manufactered "articles suitable for the Africa [slave] trade," and imported into Britain raw materials for the manufacturing industry, and luxuries for the rich (Richards, 1990). A key point, thus, is that colonization/colonialism as well as economic imperialism have always been economic adventures, however one spins the facts! *What is hard to understand, again, is why analyses have tended to overemphasize the effects of colonial powers on colonies rather than the other way around* (cf. Thomas, 1972; Mukerjee, 1972; Mintner, 1986; Cooper, 1983), to mention only a few.

4. Measuring the effects of Africa on Euro-American development

Clearly AJR (2001) and EL (2016) have provided testable models of how Euro-America has influenced African development. Others have also demonstrated effectively the lingering effects of such influences (Nunn, 2008; 2009; 2012; Bertocchi and Guerzoni, 2010; Bottero and Wallace, 2013; Inikori, 2000). However, *they all have left unanswered the question about why the effects of African and Euro-American interactions on development are always assumed to be unidirectional – only from Euro-America to Africa.* We know that over the years trillions of dollars' worth of resources have flowed from Africa to Euro-America through the slave trade, slave labor, merchandise trade, knowledge, corruption and other legal and illegal activities. We also know, provocatively speaking, that Euro-American museums and libraries have more African resources than African museums and libraries have Euro-American resources in them. Similarly, we often speak of the extinction of African worldlife, but if African animals in Euro-American zoos were returned to Africa, there would be too many of them, and world knowledge would suffer.

Using AJR's (2001) formulations, from (1)-(4) we can state the structure of African and Euro-American trade interactions as a system of three seemingly unrelated equations in which:

$$\begin{aligned} Y_i &= (A_t X_i)^{\alpha_i} \\ X_i &= (A_x Z_j)^{\beta_i} \\ Z_j &= (A_z S_k)^{\gamma_j}, \end{aligned} \tag{5}$$

where, as previously defined, Y_i is European income (product), A_t is European economy-wide technology, X_i is European manufactures, A_x is European manufacturing technology, A_z is American resource-based technology according to (3) above, Z_j is American resources exported to

Europe, S_k is African resources equal to slave labor during slavery, and raw materials (capital flight, debt, and so on) post-slavery, and α, β, and γ are parameters.

Plugging Z_j into X_i, X_i into Y_i, simplifying, and then taking the natural logs, the intensive form of (5) becomes

$$y_i = \alpha_i^* + \beta_i^* s_k,\ \alpha_i^* = \alpha_{0i} + \alpha_i\alpha_{0x} + \alpha_i\beta_i\alpha_{0z},\ \beta_i^* = \alpha_i\beta_i\gamma_j. \tag{6}$$

Pin 7: The three-way interactivity of α^* and β^* in (6) expresses European performance as driven by European manufacturing (Verdoorn-Kaldor law), which depended on American (raw) materials made possible by African slaves (slave labor) and raw materials, along with relevant technologies and efficiencies. In other words, slavery aided America and America aided Europe.

Another way of tracing the African origins of European development, is to think of the African economy as a dual economy made up of the *traditional* (non-colonial) sub-economy (T) and the *colonial* sub-economy (C), the latter being dominated by European settlers where the climate, and hence low mortality rate, was favorable and by European extractors where mortality rates were high and settlement did not happen (AJR, 2001). In that case

$$Y_k = Y_{kT}^{\alpha_k} Y_{kC}^{\beta_k},\ \beta_k = 1 - \alpha_k, \tag{7}$$

where Y_k is the African total economy made up of the *traditional* (Y_{kT}) and *colonial* (Y_{kC}) sub-economies, and α_k and β_k are positive weights. If $Y_{kT} = f(A_{kT}, X_{kT})$, and $Y_{kC} = g(X_{kT}, A_{kT}, X_{kC})$, then assuming a multiplicative Cobb-Douglas, (7) becomes

$$Y_k = (A_{kT}X_{kT})^{\alpha_k}(A_{kC}X_{kC}X_{kT})^{\beta_k} = A_k X_{kT}^{\alpha_k + \beta_k} X_{kC}^{\beta_k},\ A_k = A_{kT}^{\alpha} \times A_{kC}^{\beta_k}, \tag{8}$$

where A_k combines traditional (A_{kT}) and colonial (A_{kC}) technologies. Then from (8) it is clear that before interactions with Euro-America $g = 1$, so that $Y_k = Y_{kT}^{\alpha_k}$ (Dalton, 1962; 1967; Polanyi, 1969). On the other hand, there was never a time when $f = 1$, so that $Y_k = Y_{kC}^{\beta_k}$. What is more likely, but still debatable, is that $f' \leq 0$, or that $f' < g'$. The latter is more probable than the former, because the Euro-Americanization of Y_k led to the de-institutionalization and depopulation by war and diseases – the 'Columbian exchange' of Africa and the New World (Nunn and Qian, 2010;

Crossby, 1972).

Normalizing (8) we get

$$y_{kT} = \alpha_0 + \alpha_k^* x_{kT} + \beta x_{kC}, \; \alpha_k^* = \alpha_k + \beta_k, \tag{9}$$

and $\alpha^* = \alpha_k + \beta_k$ has the same meaning as in both AJR (2001) and EL (2016) – it represents the Euro-American technological and/or institutional influence on African development. However, while indicative, (9) is upwardly biased. To assess the net effect of Euro-America on Africa, we need to modify (9) to:

$$[Y_{kC} - Y_{kT}] = [(A_{kC} - A_{kT})(X_{kC} - X_{kT})]^{\beta - \alpha}, \tag{10}$$

which in per capita terms becomes

$$\begin{gathered} y_{kT}^* = \alpha_k^* + \beta_k^* x_k^*, \; y_{kT}^* = [Y_{kC} - Y_{kT}]/N, \; \alpha_k^* = [A_{kC} - A_{kT}]/N > 0, \\ \beta_k^* = \beta - \alpha, \; x_k^* = [X_{kC} - X_{kT}]/N > 0, \; N = \textit{Population..} \end{gathered} \tag{11}$$

The differencing in (11) is important for assessing whether Y_{kT} or Y_{kC} was stronger than, and hence influenced, the other. Furthermore, if one generalizes (7) - (11), then over time

$$Y_k(t+1) = a_0 + \Theta e^{\theta t} \Rightarrow dY_k(t)/dt + Y_k(t), \tag{12}$$

where θ is the over-time effect on Y_{kT}-Y_{kC} interactions (Θ). In other words, $\theta = \theta_{kC} + \theta_{kT}$, and (12) falls and rises with them. Alternatively, (12) can be described more generally as :

$$y_k = a_i + \gamma t + \beta t^2 + \alpha t^3, \; t = \textit{time} = \textit{years}. \tag{12'}$$

Pin 8: Assume that t_0 is the period in which African and Euro-America interactions started. Then (12) and (12') suggests a number of general scenanrios, among them the following five:

- Scenario 1: Africa was not growing at all until it began interacting with Euro-America. The implication of this scenario is that Euro-America "caused" African growth, perhaps as described by AJR (2001), EL (2016), and many others.

- Scenario 2: Africa was not growing before interaction with Euro-America, and Africa started to decline for a while upon interactions with Euro-America. The implication of this scenario is that observed growth is a recent phenomenon, and that Walter Rodney's model of "how Europe underdeveloped Africa" was a good description of the decline experienced during that time.

- Scenario 3: Africa was growing, and then declined after interactions, and recovered thereafter. This scenario is consistent with the historical legacies hypotheses in that slavery and colonialism have had lasting negative effects from which Africa needed time to recuperate.

- Scenario 4: Africa was declining before interactions, and interactions made a bad situation worse, before improvement began. Implication: It is a mistake to assign blame and/or credit.

- Scenario 5: Africa was growing and interactions made a good situation even better, suggesting the interactions were all a blessing.

Given (12), it is clear that Scenarios 1 and 5 are unrealistic; for example, they do not depict "Africa's lost decades." It is not unreasonable to assert that much of the literature on Africa's economic performance is a partial history of Scenarios 2, 3, and 4. This means that (12') can $y_k = a_i t^{-\alpha}$, and or $y_k = a_i + \beta t^2 + \gamma t$, depending on time interval and scenario under consideration. Clearly we are assuming that African and Euro-American interactions are the dominant force behind economic growth. But, just as clearly, understanding the "historical patterns of economic growth in Africa" requires one to consider (12') in whole as Jerven (2016) points out.

Using (6) and (11) the effects on Euro-American development of African performance can be estimated as

$$y_i^* = \alpha_i^{**} + \beta_i^{**} x_k,\ \alpha_i^{**} = \alpha_i^* + \beta_i^* \alpha_k^*,\ \beta_i^{**} = \beta_i^* \beta_k^*. \tag{13}$$

Alternatively we can assume that all Y_{kC} is exported such that (6) becomes

$$y_i = \alpha_i^* + \beta_i^* y_{kC},\ y_{kC} = y_k^{1/\beta} y_{kT}^{-\alpha/\beta} \approx s_k. \tag{14}$$

Eqs. (13) and (14) measure the effects on Euro-American development of African resource transfers – slaves and slave labor during slavery, and thereafter raw materials and so on.

5. Data requirements

From the preceding the key relations are (6), (13), and (14). These relations can be estimated either individually, or preferably as a system of seemingly unrelated regression equations in (5). The data requirement is a problem, but one that is surmountable given the simple structure of the model. The easiest way to begin is to consider four stylized periods.

5.1 Pre-1400 AD period

Trade has a very long history in Africa. Murphy (1972), Markovitz (1977), Davidson (1964), and and many others tell us that intensive farming in the Saharan region dates to 5200 BC, and focused mainly on pearl millet, sorgham and cowpeas due to poor soil fertility. North Africa adopted Middle Eastern and Near Asian farming techniques and grew wheat, barley, and grapes. Regarding non-agricultural sectors, Ghana, Mali, and Songhai in West Africa produced gold, copper, iron, kola nuts, salt, and dye, to trade for weapons and armor with North Africa and Southern Europe. The East African areas of Zeila, Mogadishu, Kilwa, Sofala, and Great Zimbabwe also exported gold, copper, ivory, timber and hides, and imported glassware, cotton cloth, ceramics, porcelain, and silk from Arabia, Persia, India, and China. African textiles, iron forging technology, and decorative designs were in demand and produced on commission for foreign royal families. For a layman's description of some of the scientific and engineering achievements in ancient Africa see Blatch (2013). Indeed, Africa's trade with East Asia goes back to 2500 BC as evidenced by Asian products now found in Africa like plantain, cocoyam, water-yam, banana, Chinese pottery, and Indian fabrics. The Kush-Axum area formed a link between the Middle East and Europe on one hand, and the rest of Africa on the other (Curtin, 1969; Davidson, 1964; Murphy, 1972).

Again, during this time period Africa "exported": gold, dates, kola nuts, beef, iron, copper, salt, cowrie shells, textiles, giraffes and other animals, and ivory to China and India (consider the ritual of African ivory bangels in Hindu weddings). Unfortunately "trans-Saharan slave trade" mainly with the Arabs existed as well. Indeed, in some areas, both technical and no-technical, Africa was far ahead of comparable regions – and this was not only North Africa alone. Africa textile, metal forging technologies, dentistry, and so on were more advanced than in many parts of Europe. Imports into Africa were mainly weapons, horses, and a variety of religions. The social costs of these imports have been very high (cf. Amavilah, 2016). No surprise then that during this period Europe grew faster than both Africa and the Americas.

While studying this period would greatly enhance our current understanding of the interactions between Africa and Euro-America, unfortunately data is sparsest here. What one can do, perhaps, is examine the later periods for which there is some data, and then backcast to the early years.

5.2 Atlantic slave trade period: 1400-1883

Official slavery is said to have ended in 1870, but I extend it to 1883 to stress that the Atlantic slave trade disrupted normal trade between Africa and the rest of world as it did nearly everything. In both traditional Africa and America, populations were decimated by diseases and the savage wars of colonization – all aspects of the Columbian Exchange (Nunn and Qian, 2010; De Las Casas, 1992; Crosby, 1972; Manuelli, 2011; Berthelemy and Thuilliez, 2014). The effect of slavery meant the largest ever mass migration of 10-15 million people. Hence, Y_k fell drastically whereas Y_i and Y_j grew fast as a result of slave labor. In fact, by the time slavery formally ended, the U.S. economy was firmly anchored in the cotton industry, and associated industries and technologies, all of which developed because of African slaves. Thereafter American growth began to depend increasingly on a combination of exogenous and endogenous resource-based factors and forces. Baptist's (2014) claim that cotton was the foundation of American capitalism is not groundless. Hence, given the number of slaves and the "market unit price" of slaves, we can impute value on the marginal product of slave labor as

$$S_k' = d(P_j Z_j(S_k))/dZ_j = P_j, \tag{15}$$

where $P_j = \bar{w} + \pi$, $\bar{w} = (w_s + w_m)/2$, $w_m > w_s$, P_j is the price of Z_j produced by slave labor, $\bar{w}$ is the average labor wage considering both free and slave labor, w_m is the free market labor wage, w_s is slave labor wage, and π is the slaveowners profit margin. However, the market for slaves is not a competitive market. Here one can use Becker's (1971; cf. Flinn, 2015) insight on wage discrimination to approximate the slave exploitation coefficient (φ) as

$$\varphi = \frac{w_m - w_s}{w_s} \rightarrow w_s = \frac{w_m}{1 + \varphi}; \; P_j = w_s + \pi = \frac{w_m + (1 + \varphi)\pi}{1 + \varphi}, \tag{16}$$

suggesting that slavery without exploitation is not possible, because for $w_m = w_s, \varphi = 0$ (cf. Smith, 1965; Roediger, 1991). We know from Costa, Palma, and Reis (2012) that local wages were higher with gold imports than without them in both Portugal (Figure 5 and Table 3, p. 22) and England (Figure 6, p. 24). The rates of urbanization and agricultural productivity were lower without colonial trade than with colonial trade. Thus, slave exploitation was a form of labor discrimination. This is a neoclassical perspective, but Roemer (1982) provides a Marxian alternative approach to φ in different economic systems.

In this period, S_k can be represented safely by the number of slaves. Such a representation captures a number of related facts. Two examples: One, slave labor was a source of revenue/profit as in (14) and (15) above. Second, slaves increased population, and population growth was a key economic driver in the beginning years of America. This is important, because from Mankiw, Romer, and Weil

(1992) we know that

$$y_i = a_0 + gt + \frac{\alpha}{\beta}k^* - \frac{\alpha}{\beta}V, \qquad (17)$$

$$V = n^* - g^*,\ n^* = \ln(n),\ g^* = \ln(g),\ k^* = k - \delta,\ \delta = \textit{depreciation.}$$

where k is the investment-output ratio, n is labor (population) growth, g is the growth rate of technical change, δ is depreciation, and a_0 is some efficiency indicator. Solving for $\exp(n^*) = \exp(\ln(n))$ would reveal that

$$n = f(k^*, y, g; \beta, \alpha). \qquad (18)$$

Eqs. (17) and (18) show an inverted-U relationship between national income growth and population. Early population growth was good for both Europe and America. For America population growth increased labor, while for Europe it reduced the number of mouths to feed. The former represented increased productivity; the latter high per capita income. Hence, the slave population was important to the Euro-American economy.

I divide this period into two sub-periods: 1400-1865 (end of slavery) and 1865-1883 (beginning of the "Scramble for Africa"). We expect different growth dynamics. Either way, for (Y_i, y_i) we use measures of economic activity in Britain, Spain, Portugal, France, Germany, the Netherlands, and whatever we can find of Scandinavia. We denote manufactured exports to America (North America, Brazil, etc.) as (X_i, x_i), and European imports from America as (Z_j, z_j). We measure the African effects on Euro-American development via S_k equal to the slave population or slave labor during slavery and raw materials during the 1865-1883 years.

5.3 Colonial-imperial period: 1884-1994

This is a well-studied period that encompasses: the "Scramble for Africa", colonialism, "the wind of change" (struggles for independence and independence), neocolonialism, economic imperialism, the Cold War, and the lost decades of the 1970-1994 years. It can also be sub-divided into 1884-1970 (scramble sub-period), and 1970-1994 (lost decades). The former period saw tremendous amounts of minerals, energy, and agricultural resources flowing from Africa to Euro-America. The 1970-1994 period was truly "lost decades" marked by episodes of widespread starvation, political instabilities (coups), raw material looting (e.g., blood diamonds), along with corruption, debt, and imports of mainly weapons. In this period minerals, energy, and debt alone would be good proxies for S_k, and

Key variable descriptions

Equation	Symbol Level, Intensive	Description	Expected effect
0	S, s_k	African resources to Euro-America: slaves and slave derivatives, raw materials, debt, corrupt banking and other investments.	Significantly positive
1	Z_j, z_j	American exports to Europe -- raw materials produced by slaves: cotton, sugar, later weapons, etc.	Significantly positive
2	X_j, x_i	European manufacured exports first to America (clothes, etc.) and later to Africa (religion, weapons, etc.)	Dynamic over time
3	Y_j, y_i	Economic growth of Europe	African origins exist

Note: Africa: Any country, region, and so on for which reasonable data is available. America: USA, Canada, Brazil, West Indies, and others. Colonial Europe: Britain, Spain, Portugal, France, Germany, Netherlands, and Scandinavia.

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cotton and military hardware good proxies for Z_j, ceteris paribus

5.4 Growth with inequality and poverty 1995-todate

Relative to their performance history, African countries have done better during this time period. However, such growth has come with increased inequality of income and even more so of wealth. This means growth has not reduced poverty, which begs the question: Where did growth go? Growth has gone elsewhere. To test for this, we simply assess the effects of African exports on Euro-American trade-related growth. In the end, across all stylized periods, I seek to address the following reduced form regression:

$$\textit{Euro-American Development} = \textit{Constant} + \textit{Africa Effects} + \textit{Internal Euro-America Effects} + \epsilon. \quad (19)$$

6. Econometric sketch of African origins of Euro-American development

Restating (5) in regression form, starting from the low order to the high order equations, (19) becomes

$$
\begin{aligned}
z_{jt} &= \gamma_0 + \gamma_1 s_{kt} + \gamma_2 G_{zt} + \mu_{zt} \\
x_{it} &= \beta_0 + \beta_1 z_{jt} + \beta_2 G_{xt} + \mu_{xt} \\
y_{it} &= \alpha_0 + \alpha_1 x_{it} + \alpha G_{yt} + \mu_{yt},
\end{aligned}
\tag{20}
$$

where $G_{z,x,y}$, including their lagged values, are unique pre-determinants and over-identifiers of each equation, and $\mu_{z,x,y}$ are error terms associated with each equation. Making necessary substitutions, (20) gives us the following seemingly unrelated regression equations:

$$
\begin{aligned}
z_{jt} &= \gamma_0 + \gamma_1 s_{kt} + \gamma_2 G_{zt} + \mu_{zt} \\
x_{it}^* &= \beta_0^* + \beta_1^* z_{jt}^* + \beta_2 G_{xt} + \mu_{xt}^* \\
y_{it}^* &= \alpha_0^* + \alpha_1^* x_{it}^* + \alpha_2 G_{yt} + \mu_{yt}^*,
\end{aligned}
\tag{21}
$$

where $\beta_0^* = \beta_0 + \beta_1\gamma_0$, $\beta_1^* = \beta_1\gamma_1$, $z_j^* = s_{kt} + \beta_1\gamma_1 G_{zt}$, $\mu_{xt}^* = \beta_1\mu_{zt} + \mu_{xt}$; and
$\alpha_0^* = \alpha_0 + \alpha_1\beta_0$, $\alpha_1^* = \alpha_1\beta_1$, $x_{it} = z_{it} + \alpha_1\beta_2 G_{xt}$, $\mu_{yt} = \alpha_1\mu_{xt} + \mu_{yt}$.

Now, let $W_i^* = [z_{jt}^*, x_{it}^*, y_{it}^*]^T$, $G_i^* = [G_z, G_x, G_y]^T$, $\mu_i^* = [\mu_{zt}, \mu_{xt}^*, \mu_{yt}^*]^T$. Suppose further that regression coefficient matrices are $C = \textit{Constant} = [\gamma_0, \beta_0^*, \alpha_0^*]^T$, $\pi_i = [\gamma_1, \beta_1^*, \alpha_1^*]^T$, and $\lambda_i = [\gamma_2, \beta_2, \alpha_2)]^T$, then, disregarding arithmetic signs for now,

$$
W_i^*\pi_i + G_i^*\lambda_i = [\xi_i \equiv (C + \mu_i^*)], \tag{22}
$$

for W_i^* $(N = 3 \times 1)$ = vector of endogenous variables, G_i^* $(N = 3 \times K_i)$ = vector of predetermined variables, and μ_i^* $(N = 3 \times 1)$ = vector of disturbances. Pre-multiplying both sides of (22) by π_i^{-1} and solving for W_i^*, we get

$$
\begin{aligned}
W_i^* &= G_i^*\rho_i + v_i, \\
\rho_i = \pi_i^{-1}\lambda_i,\ v_i &= \pi_i^{-1}[\xi_i \equiv (C + \mu_i^*)],\ E(v_i) = 0,\ E(v_i v_j) = \sigma_{ij} I,\ E(v_i v_i') = \Omega.
\end{aligned}
\tag{23}
$$

For all N observations on W and G one can write (23) as

$$W^* = G^*\rho + v,\ \hat{\rho} = (G^{*\prime}\Omega^{-1})^{-1}(G^{*\prime}\Omega^{-1}W^*). \quad (24)$$

Then one can either estimate (6), (13), and (14) independently using the stepwise regression method, the quasi-recursive system in (21) by familiar stage techniques, or (23) or (24) by some generalized method**. All the same we expect Africa to have had an effect on Euro-American development.

7. Concluding remark

This paper argues that contrary to the extant literature, the development of Euro-America has origins in Africa through the mechanism of trade. The growth of colonial Britain, for example, depended on foreign trade with the Americas – exports of manufactured goods and imports of raw materials. American raw materials were produced by African slave labor. When slavery ended African raw materials began to flow to Euro-America in greater amounts than before, replacing slave labor. The result was a smooth transition from a slave-labor based economy to a modern Euro-American economy, and stunted development for Africa. The paper sketches the channels of interactions and builds a system of three seemingly unrelated equations that can be estimated individually or simultaneously to quantify Africa's effects on Euro-American development. Our review of the literature proves our theory correct, but the policy implications of the effort remain limited until we implement the model empirically, which is the direction for our future work on the topic.

References (No particular style)***

Acemoglu, D., Johnson, S., and Robinson, J.A., 2002. Reversal of fortune: Geography and institutions in the making of the modern world income distribution, *Quarterly Journal Economics*, 107(4), 1231-1294.

Acemoglu, D., Johnson, S., and Robinson, J.A., 2005. The rise of Europe: Atlantic trade, institutional change, and economic growth, *American Economic Review*, 95 (3): 546-579.

Acemoglu, D., Johnson, S., & Robinson, J.A., 2001. The colonial origins of comparative development, *American Economic Review*, 91(5): 1369-1401.

Amavilah, V.H., 2010. Introducing anthropological foundations of economic behavior, organization,

**We use the term "quasi-recursive" simply to indicate that we did not estimate whether Euro-American development promoted or hindered slavery and the exploitation of African resources.

***This literature is evolving. If a reader comes across a familiar idea that has not been appropriately acknowledged, please give credit where it is due.

and control, MPRA Paper 22921, University Library of Munich, Germany.

Amavilah, V.H., 2011. Romer's charter cities v. colonization, imperialism, and colonialism: A general characterization. MPRA Paper 29974, University Library of Munich, Germany. Available at https://mpra.ub.uni-muenchen.de/29974/1/MPRA_paper_29974.pdf.

Amavilah, V.H., 2016. Social obstacles to technology, technological change, and the economic growth of African countries: Some anecdotal evidence from economic history, *Turkish Economic Review*, 3(2): 320-340.

Amavilah, V.H., 2006. Institutional change and economic performance: An off-the-cuff comment on Professors Daron Acemoglu, Simon Johnson and James Robinson's three papers (March 10). Available at SSRN: https://ssrn.com/abstract=911324 or http://dx.doi.org/10.2139/ssrn.911324

Amavilah, V.H., 2014a. Sir W. Arthur Lewis and the Africans: Overlooked economic growth lessons.MPRA Paper No. 57126. Available at https://mpra.ub.uni-muenchen.de/57126/1/MPRA_paper_57126.pdf.

Amavilah, V.H., 2014b. Knowledge= technology and human capital and the Lucas and Romer production functions. MPRA Paper 58847. Available at https://mpra.ub.uni-muenchen.de/58847/1/MPRA_paper_58847.pdf.

Amavilah, V.H. 2014c. Human knowledge and a commonsensical measure of human capital: A proposal. MPRA Paper 57670. Available at https://mpra.ub.uni-muenchen.de/57670/1/MPRA_paper_57670.pdf.

Amavilah, V.H., 2009.. Knowledge of African countries: Production and the value of doctoral dissertation, *Applied Economics*, 41(8), 977-989.

Amavilah, V.H., 2005. Resource intra-actions and interactions: Implications for technological change and economic growth. Working Paper No. 2005(3)[June}. Available at http://econwpa.repec.org/eps/ge/papers/0508/0508004.pdf.

Amin, S., 1977. *Imperialism and unequal development*. New York: Monthly Review Press.

Amin, S 1976[1973] *Unequal development: An essay on the formations of peripheral capitalism* (Brian Pearce's translation). Sussex (UK): Harvester Press, Ltd.

Archer, J., 2003. Wakefieldís theory of ësystematic colonization, *National Library of Australia News*, 8(9). http://www.nla.gov.au/pub/nlanews/2003/jun03/story-2.pdf.

Asongu, S.A., and Leke, I., 2016. The costs and benefits of migration into the European Union: Debunking contemporary myths with facts, MPRA Paper No. 75227. Available at

https://mpra.ub.uni-muenchen.de/75227/1/MPRA_paper_75227.pdf.

Austen, 2005 Austin, Gareth. 2005. Labour, land and capital in Ghana: From slavery to free labour in Asante, 1807-1956. Rochester: Rochester University Press.

Austin, G., 2010. African economic development and colonial legacies, Dossier, Africa: 50 Years of Indepepence -Review Major Development policy Trends, pp. 11-32. Available at https://poldev.revues.org/78.

Austin, G., 2008. The 'reversal of fortune' thesis and the compression of history: Perspectives from African and comparative economic history, *Journal of International Development*, 20:996-1027.

Bagchi, A.K., 1982. *The political economy of underdevelopment*. Cambridge/New York: Cambridge University Press.

Baptist, E.E., 2014. *The half has never been told: Slavery and the making of American capitalism*. New York: Basic Books.

Barbier, E.B., 2005. *Natural resouces and economic development*. Cambridge: Cambridge University Press.

Barbier, E.B., 2001 *Scarcity and Frontiers: How Economies Have Developed Through Natural Resource Exploration*. Cambridge (UK): Cambridge University Press.

Becker, G.S., 1971. *Economics of discrimination*, 2nd ed. Chicago: University of Chicago Press.

Benhabib, J. and Spiegel, M.M., 1994. The role of human capital in economic development: Evidence from aggregate cross country data, *Journal of Monetary Economics* 34(2): 143-173.

Berthelemy, J-C., and Thulliez, J., 2014 The economics of malaria in Africa. Working Paper Series UNU-WIDER Research Paper 2014/047. Available at .
https://www.wider.unu.edu/sites/default/files/wp2014-047.pdf.

Bertocchi,G., and Canova, F., 2002. Did colonization matter for growth? A empirical exploration into historical causes of Africa's underdevelopment, *European Economic Review*, 46: 1851-1871.
Available at http://morgana.unimore.it/bertocchi_graziella/courses/bertocchiEER2002.pdf.

Bertocchi, G., and Guerzoni, A., 2010. Growth, history, or institutions? What explains state fragility in Sub-Saharan Africa. IZA Discussion Papres 4817, Institute for the Study of Labor.

Bhattacharyya, S. 2009. Root causes of African underdevelopment, *Journal of African*

Economies, 18(5), 745-780.

Blatch, S., 2013. Great achievements in science and technology in ancient Africa. Available at http://www.asbmb.org/asbmbtoday/asbmbtoday_article.aspx?id=32437.

Bottero, M., and Wallace, B., 2013. Is there a long-term effect of Africa's slave trades? Economic History Working Papers 30, Bank of Italy, Economic Research and International Relations Area.

Boulding, KE, and Mukerjee, T (eds), 1972. *Economic Imperialism.* Ann Arbor: University of Michigan Press.

Cardoso, and Faletto, 1979. Dependnency and development in Latin America. Available at http://isites.harvard.edu/fs/docs/icb.topic925740.files/Week%202/Cardoso_Dependency.pdf.

Carmignani, F., and Chowdhury, A., 2011. The development effects of natural resources: A geographical dimension. Working Papers and Research 2011-09. Marguette University, Center for Global and Economic Studies and Department of Economics. Available at http://www.rrojasdatabank.info/africadeveffectsnaturalres.pdf.

Carmignani, F., and Chowdhury, A., 2010. Why are natural resources a curse in Africa, but not elsewhere? Discussion Papers Series 406, School of Economics, University of Queensland, Australia. Available at http://www.uq.edu.au/economics/abstract/406.pdf.

Choi, K., 1983. *Theories of Comparative Economic Growth.*. Ames: Iowa State University Press, Chapter 6..

Clootens, N. And Kirat, D. 2017. A reappraisal of the resource curse, *Economics Bulletin*, 33(1): 12-18.

Cooper, A., 198[2?] *U.S. Economic Power and Political Influence in Namibia, 1700-1982.* Boulder (CO): Westview Press.

Costa, L.F., Palma, N., and Reis, J., 2012. The great escape? The contribution of the empire to Portugal's economic growth, 1500-1800, European Review of Economic History, 19: 1-22. Available at https://core.ac.uk/download/pdf/29404862.pdf.

Crosby, Jr, A.W., 1972. *The Columbian exchange: Biological and cultural consequences of 1492.*Westport: Greenwood Press.

Curtin, P., 1969. *The Atlantic slave trade: A census.* Madison: University of Wisconsin Press.

Dalton, G. , 1962.. Traditional production in primitive African economies, *Quarterly Journal of*

Economics, 76(3), 360-378.

Dalton, G., ed., 1967. *Tribal and peasant economies*. Austin/London: University of Texas Press.

Davidson, B., 1959. *Lost Cities of Africa*. Boston: Little, Brown and Company.

Davidson, B., 1964. *The African past: Chronicles from antiquity to modern times*. Boston: Atlantic Monthly Press/Little, Brown, and Company.

Davis, G.A., and Tilton, J.E., 2005. The resource curse, *Natural Resources Forum*, 29: 233-242. Available at http://lawweb.colorado.edu/profiles/syllabi/banks/Davis%2520%2520Tilton%2520-%2520The%2520resource%2520curse.pdf.

Davis, G.A., 1995. Learning to love the Dutch disease: Evidence from the mineral economies, *World Development*, 23(10): 1763-1779.

De Las Casas, B., 1992 *The Devastation of the Indies: A Brief Account*. Baltimore: Johns Hopkins University Press.

Douglass, P.H., 1964[1933]. *The theory of wages*. New York: Augustus M. Kelley Bookseller.

Easterly, W., and Levine, R., 2016. The European origins of economic development, *Journal of Economic Growth*, 21: 225-257.

Emmanuel, A., 1972.. *Unequal exchange: A study of the imperialism of trade.* New York: Monthly Review Press.

Engerman, S.L., 2002. Factor endowments, inequality, and papths of development in the New World economies. NBER Working Paper No. 9259. Available at http://www.nber.org/papers/w9259.pdf.

Englebert, P., 2000. Pre-Colonial institutions, post-colonial states, and economic development in tropical Africa, *Political Research Quarterly*, 53(1): 1-30.

Evans, P.,1979. *Dependent development: The alliance of multinational, state, and local capital in Brazil*. Princeton: Princeton University Press.

Findlay, R., 1999. Resource-led growth – long-term perspective: The relevance of the 1970-1994 experience for today's developing economies. UNU/WIDER Working Paper No, 162, WIDER, Helsinki. Available at https://www.wider.unu.edu/publication/resource-led-growth-long-term-perspective.

Findlay, R., 1993. The 'trinngular trade' and the Atlantic economy of the Eighteenth Centtury: A simple general equilibrium model, in *Trade, development and political economy: Essays of Ronald Findlay* (ed). London: Edward Elgar, pp. 321-351,

Flinn, C.J., 2015. Gary Becker's contributions to the analysis of discrimination, Journal of Demographic Economics, 81: 45-50.

Fogel, R.W., and Engerman, S.L., 1989[1974]. *Time on the cross: The economics of American Negro slavery*. New York/London: W.W. Norton & Company.

Fosu, A.K., 2013. Growth of African economies: Productivity, policy syndromes, and the importance of institutions, *Journal of African Economies*, 22(4): 523-551.

Frank, A.G., 1969. *Capitalism and underdevelopment in Latin America: Historical studies of Chile and Brazil*. New York: Monthly Review Press.

Hicks, J.R. 1969. *A theory of Economic history*. London/New York: Oxford University Press. Chapters IV and VIII.

Hobson, J.A., 1902. The economic taproot of imperialism. In *Economic Imperialism* (K.E. Boulding and T Mukerjee, eds). Ann Arbor: University of Michigan Press.

Hochschild, A., 1998. *King Leopold's ghost: A story of greed, terror, and heroism in colonial Africa*. Boston/New York: Houghton Mifflin Company.

Inikori, J.E., 2000. The "wonders of Africa" and the Trans-Atlantic slave trade, West Africa Review, 1(2) (Online).

Inikori, J.E.., 2000. "Africa and the Trans-Atlantic Slave Trade," in Toyin Falola, ed., Africa Volume I: African History Before 1885 (Carolina Academic Press, North Carolina, 2000), 389–412.

Inikori, J.E., 2002. Africans and the Industrial Revolution in England: A Study in International Trade and Economic Development. Cambridge: University Press, Cambridge.

Inikori, J.E., and Engerman, S., (Eds.), 1992. *The Atlantic Slave Trade Effects on Economies, Societies, and Peoples in Africa, the Americas, and Europe*. Durham: Duke University Press.

Jerven, M., 2011. A clash of disciplines? Economists and historians approaching the African past, Economic History of Developing Regions, 26(2):111-124.

Jerven, M., 2016. Historical patterns of economic growth in Africa: A review. African economic history working paper series, No. 28/2016. Norwegian University of Life Science.

Joseph, G.G., and Tomlison, M., 1991. Testing the existence and measuring the magnitude of unequal exchange resulting from international trade: A Marxian approach, *Indian Economic Review*, XXVI(2): 123-148.

Kaldor, N., 1966. *Causes of the slow rate of growth of the United Kingdom: An inaugural lecture*. London: Cambridge University Press.

Kaldor, N., 1961. Capital accumulation and economic growth, in F. A. Lutz and D.C. Hague, eds., *The theory of capital*. London, New York, reprinted in Ferdinando Targetti and Anthony P. Thirlwall, eds, (1989), The Essential Kaldor. London: Duckworth, pp. 229–281.

Kaufman, A., 1982. *Capitalism, slavery, and Republican values: Antebellum political economists, 1819-1848.* Austin: University of Texas Press.

Kittrell, E.R , 1973. Wakefield's scheme of systematic colonization and classical economics. *American Journal of Economics and Sociology*. 32(1): 87-111.

Kittrell, E.R., 1965. Bentham and Wakefield., *Economic Inquiry,* 4(1): 28-40.

Kittrell, ER, 1966. Wakefield and classical rent theory, American Journal of Economics and Sociology 25(2):141-

Kolchin, P., 1993. *American slavery, 1619-1877.* New York: Hill and Wang.

Krugman, P.R., 1981. Trade, accumulation, and uneven development, *Journal of Development Economics*, 8: 1419-161.

Lenin, V.I., 1965. *Imperialism, the highest stage of capitalism: A popular outline*. Peking: Foreign Languages Press.

Lewis, W.A., 1965[1955]. *The Theory of economic growth*. New York: Harper Torchbooks.

MacCullough, D., 2006. *Christian history: An introduction to the Western tradition.* Werrington (UK): Epworth.

Manuelli, R., 2011. Disease and development: The role of human capital, Working Papers 2011-008, Human Capital and Economic Opportunity Working Group.

Markovitz, I.L , 1977. *Power and class in Africa: An introduction to change and conflict in African politics.* New York: Prentice-Hall.

Marx, K., 1906. *Capital: A critique of political economy*. New York: Modern Library, Chapter

XXXIII.

Minter, W., 1986. *King Solomon's Mines Revisited: Western Interests and the Burdened History of Southern Africa*. New York: Basic Books, Inc., Publishers.

Moss, J.M., 2007. *African Development: Making sense of the Issues and Actors*. Boulder: Lynne Rienner Publishers.

Mukerjee, T., 1972. Theory of economic drain: Impact of British rule on the Indian economy, 1840-1900. In *Economic Imperialism* (K.E. Boulding and T Mukerjee, eds). Ann Arbor: University of Michigan Press.

Murphy, C.J., 1972. *History of African civilization: The peoples, nations, kingdoms, and empires of Africa from prehistory to the present*. New York: Thomas Y. Crowell Company.

Nunn, N., 2009.. The importance of history in economic development, *Annual Review of Economics*, 1: 65-92.

Nunn, N., 2008. The long-term effects of Africa's slave trades, *Quarterly Journal of Economics*, 123(2): 703-745.

Nunn, N., and Qian, N., 2010. The Columbian exchange: A history of disease, food, and ideas. *Journal of Economic Perspectives*, 24(2): 163-188.

Nunn, N., & Puga, D. (2012). Ruggedness: The blessing of bad geography in Africa. *Review of Economics and Statistics*, 94(4), 20-36.

Pakenham, T, 1991. *The Scramble for Africa*, 1876-1912. London: Abcus (1997 reprint).

Polanyi, K., 1966. *Dahomey and the Slave Trade: An analysis of an archaic economy*. Seattle (WA): University of Washington Press.

Prebisch, R., 1950. *The economic development of Latin America and its principal problems*. New York: UN Economic Commission of Latin America. 66 pp.

Richards, T., 1990. Selling darkest Africa, In *The commodity culture of Victorian England: Advertising and spectacle*, 1851-1914. Stanford: Stanford University Press. Chapter 3.

Rodney, W 2011[1972] *How Europe Undeveloped Africa*. Black Classic Press.

Roediger, D.R., 1991. *The wages of whiteness: Race and the making of the American working class*. New York: Verso.

Roemer, J.E., 1982. *A general theory of exploitation and class*. Cambridge (MA): Harvard University Press.

Romer, P.M., 1993.Idea gaps and object gaps in economic development, *Journal of Monetary Economics*, 32(3): 543-573.

Romer, P.M., 1996. Why, indeed, in America: Theory, history, and the origins of modern economic growth, *American Economic Review*, 86(2): 202-212.

Romer, P.M., 1990. Endogenous technological change, *Journal of Political Economy* 98(5): S71-S102.

Sanghamitra, B., and Green, E. 2011. The reversal of future thesis reconsidered, *Journal of Development Studies*, 48(7): 817-831.

Schumpeter, JA 1919. On imperialism. In *Economic Imperialism* (K.E. Boulding and T Mukerjee, eds). Ann Arbor: University of Michigan Press

Sigmund, P.E., 1972. *The Ideologies of the Developing Nations*, 2nd revised edition. New York: Praeger Publishers.

Singer, H.W., 1950. The distribution of gains between investing and borrowing countries, *American Economic Review* 40(2): 473-485.

Smith, A.E., 1965. *Colonists in Bondage: White servitude and convict labor in America, 1607-1776*. Gloucester (Mass).

Smith, A., (1937[1776]). *An Inquiry into the nature and causes of the Wealth of Nations* (Edwin Cannan (ed) and Max Lerner (introducer). New York: Modern library/Random House, Inc.

Sokoloff, K.L., and Engerman, S.L., 2000 History lessons: Institutions, factor endowments, and paths of development in New World economies, *Journal of Economic Perspectives*, 14(3): 217-232.

Sweezy, P.M., 1970. *The theory of capitalist development*. New York/London: Modern Reader Paperbacks.

Thomas, R.P.,.1972, The effects of British imperial policy. In *Economic Imperialism* (K.E. Boulding and T Mukerjee, eds). Ann Arbor: University of Michigan Press.

Thornton, K., 1998. *Africa and Africans in the Making of the Atlantic World, 1400-1800* Cambridge: Cambridge University Press,

Van Sertima, I., 1976. *They came before Columbus: The African presence in ancient America.* New York: Random House.

Wakefield, E.G., 1849[2001]. *A view of the art of colonization in letters between a statesman and a colonist.* Clarendon Press. Oxford. See http://books.google.com/ for a copy.

Wallerstein, I., 1974. *The modern world system I: Capitalist agriculture and the origins of the European world economy in the Sixteenth Century.* New York: Academic Press.

Wallerstein, I., 1980. *The modern world-system II: Mercantilism and the consolidation of the European world-economy, 1600-1750.* New York: Academic Press.

Wallerstein, I., 1989. *The modern world-system III: The second era of great expansion of the capitalist world-economy, 1730-1840.* New York: Academic Press.

Webber, M.J., and Foot, S.P.H., 1984. The measurement of unequal exchange, *Environment and Planning* A16(7): 927-947.

Wright, G., 1978. *The political economy of the cotton South: Households, markets, and wealth in the nineteenth century.* New York/London: W.W. Norton & Company.

Wright, G., 1990 The origins of American industrial success, 1879-1940, *American Economic Review*, 80(4): 651-668.